Appl'n No: 10/525,094 Amdt dated August 2, 2007

Reply to Office action of May 2, 2007

AMENDMENTS TO THE SPECIFICATION

Please cancel the previously filed abstract of the disclosure and enter the new abstract of the

disclosure submitted herewith in its place.

Please replace the paragraph beginning at line 14 of page 2 with the following rewritten

paragraph:

-- Figure 2 is a perspective view of a counter-balance-spring cover disk spring housing of the

assembly shown in Figure 1. --

Please replace the paragraph beginning at line 16 of page 2 with the following rewritten

paragraph:

-- Figure 3a and 3b are is a perspective views view of a first side of a cable drum of the assembly

shown in Figure 1; and --

Please insert the following paragraph after the paragraph beginning at line 16 of page 2 and

before the paragraph beginning at line 18 of page 2:

-- Figure 3b is a perspective view of a second side of the cable drum of the assembly shown in

Figure 1; and --

Please replace the paragraph beginning at line 3 of page 3 with the following rewritten

paragraph:

-- The counter balance spring 16 is a conventional counter balance spring made of flat spring

steel stock. The counter balance spring 16 extends between the drive shaft 12 and the spring

housing 20 to provide a counter balancing force on drive shaft 12 to minimize winding efforts

required to open and close a window. Counter balance spring 16 is wound about bearing surface

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30 of the drive shaft 12. The inner end of spring 16 has a hook 32 that engages an axially

aligned receiving slot 17 on drive shaft 12. The spring 16 is wound up a few turns to provide a

pre-tension. The pre-tension tightens the first few inner coils around the drive shaft 12, thereby

holding the spring hook 32 in place. --

Please replace the paragraph beginning at line 18 of page 3 with the following rewritten

paragraph:

-- The An inner face 23 of spring housing 20 has an outer coil guide ring 40. The guide 40 is

arcuate and extends between the two tabs 38. The guide 40 is spaced from the wall 41 of the

housing approximately equivalent to the radial thickness of the spring 16. The outermost coil of

spring 16 is inserted between guide 40 and wall 41, while the outer end of spring 16 has a

hooked end 34 that is inserted into one of slots 39, 39'. This installation prevents bias of the

spring 16 in the housing 20 during wind-up. This reduces hysteresis and produces a much

smoother torque curve. --

Please replace the paragraph beginning at line 29 of page 3 with the following rewritten

paragraph:

-- Spring housing 20 has a central aperture 43 through which drive shaft 12 extends and defines a

drive axis. As shown in Fig. 1, the an outer surface 25 of the spring housing 20 preferably

includes a ring 42 that is offset from the drive axis. --

Please replace the paragraph beginning at line 1 of page 4 with the following rewritten

paragraph:

-- The drum 24, which is also shown in isolation in Fig. 3A, includes a circular groove 144 that

mates with the circular ring 42 to maintain the offset alignment and defines a drum axis offset

from the drive axis. The drum 24 has a central bore 26 having a series of internal teeth 27 on an

inner circumferential face 26. The outer drum surface has a helical groove 46 that communicate

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communicates with terminal pockets 47, 49 on opposite axial end faces of the drum 24. The

terminal pockets 47, 49 receive drive cable end fittings in a manner well known in the art. --

Please replace the paragraph beginning at line 8 of page 4 with the following rewritten

paragraph:

-- The drum 24 has a raised embossment 45 on the face opposite the groove 144. Referring back

to Figure 1, the drive casing 28 is configured to receive the drum 24 and spring housing 20. The

casing 28 has a circular recess 44 that receives embossment 45 of the drum 24 in a sliding

relation. Recesses 51 receive tabs 38. The casing 28 has two cable outlets 53 from which the

cables extend. --

Please replace the paragraph beginning at line 13 of page 4 with the following rewritten

paragraph:

-- Once assembled, the drive pinion 14 drivingly engages with the internal teeth 27 of inner

periphery the central bore 26. As shown schematically in Fig. 4, the pinion gear 14 is relatively

small, preferably comprising a six-tooth involute gear, that mates with a thirteen-tooth internal

gear forming the inner circumferential face formed by the internal teeth 27 of the central bore 26

of the drum 24. This arrangement, made possible by the aforementioned offset alignment,

provides a gear reduction system (2.17:1 in the preferred embodiment). It is understood that the

present invention is not limited to this specific gear reduction and it will be appreciated by those

skilled in the art that other gear ratios may be utilized within the scope of the present invention.

It will also be appreciated that the axial offset between the drum 24 and shaft 12 can be provided

by other types of guiding mechanisms. For example, the drum 24 could have a circular rail and

the spring housing 20 could have a corresponding groove. Alternatively, the casing 28 could be

modified to contain the drum 24 circumferentially instead of axially (or in addition thereto) in

order to maintain the offset alignment. --

Attachment: Abstract

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